

Bustami Usman, Ibrahim Champion, Asnawi Muslem, Iskandar Abdul Samad: Standing, Active...



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Standing, Active vs Sitting, Torpid: a Management Decision

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Abstract: The aim of the study is to investigate the pros and cons of standing while working and studying. A qualitative research was employed where the data taken from education practitioners and students interested to learn and support the introduction of standing desks. The finding of the study show that students and sedentary workers now spend up to 85% of their waking hours, (+/-13.5 hrs/day), sitting viz: sitting at meals, sitting in transportation, sitting in schools or offices, sitting watching TV or looking at a handphone or an i-pad plus sitting whilst watching sport or playing computer games. Even if standing in classes became the default behaviour in all classes it could only result in a maximum of about 20 extra hours of standing per week during semesters and thus could only reduce the amount of time spent sitting by a maximum of 14% of waking hours to 71% of waking hours. The height of Standing Desks should be at the elbow height of the person concerned ie about 1.00m for senior high school and university students and adults. For primary school students the desk height for the standing desk is about 75cm – ie. the same as the desk height for normal sitting desks for adults. The study also did a small survey of educators, 66% of whom would support the introduction of standing desks. Finally the study found that 72 % of the students and their teacher supported the introduction of standing desks. It is hoped that some schools and offices will take the initiative to introduce standing desks on a larger scale.

Keywords: Standing desks; health benefits; improves attentiveness, better results for work and study.

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INTRODUCTION

Schools and their teachers are stewards for their students, for the well being and the development of them. They have the greatest influence on the development of their students after their parental home environment and so they must act responsibly to provide the best possible environment for the physical and mental development of their proteges. If it should turn out that practices in the school are actually detrimental to the

development of learning such practices should be and have been changed. Corporal punishment and shaming of students for poor work are two examples which fortunately are now mostly, part of past, bad educational history. And now it looks as if students sitting, torporified at their traditional sitting down school desks should go the same way.

This small study examines a little known but recent topic in education management-standing-desks vs sitting desks,

the reasons for and against and why we, as teachers, lecturers, school principals and school advisors should be campaigning to introduce standing desks and high stools into our schools for our students and for our teachers (Aminian, Hinckson, & Stewart, 2015; Blake, Benden, & Wendel, 2012; Lanningham-Foster et al., 2008; Minges et al., 2016; Reiff, Marlatt, & Dengel, 2012; Sherry, 1995). This study relies on writings and reports from overseas, but hopefully within a few years interest will grow within Indonesia and the results of trials should prove that standing-active desks should be the new default situation to replace torpid, soporific, unhealthy, yes unhealthy, sitting down desks.

Stand Up and Be Counted

Managements, in schools and offices, first seem to have become interested in standing-active or standing-biased desks around 2000; before that it was not mentioned in management or education circles; for example Penny Ur in “A Course in Language Teaching” (1999) and Jay Greene in *Education Myths* (2005); Greene, Forster, & Winters (2005) make no mention of standing vs sitting or even of different sitting or classroom arrangements.

Students Standing, Active vs Sitting, Soporific

Although it's hard to say when the movement to standing desks and even stand up meetings really started, in fact, in some industries stand up service has been with us for a long time - think of bank tellers and receptionists today and of ledger clerks in days of yore. But the movement to stand up desks really started to gain momentum when the results of recent studies in the USA started to become available and these results were publicised by several authors: In particular Levine, in his book *“Get Up!: Why Your Chair is Killing You and What You Can Do About It”* (Levine, 2014) and Vernikos with *“Sitting Kills, Moving Heals”* (Vernikos, 2011) and Starrett, in *“Deskbound, Standing Up to a Sitting World”* (Starrett & Cordoza,

2016), Starrett has also put a video on YouTube *“Deskbound- Talks at Google”*: These doctors, ALL, make the point that too much sitting not only has very bad implications for the health of the sitters but also has negative effects on productivity, creativity and working together co-operatively. As a result standing, active vs sitting soporifically has now become a Cause Celebre in some management circles and is starting to impact education management as well.

We first became aware of this movement through the writings of Mercola, who has a very popular health advice web site. He has interviewed all three of the above writers on his web site and we will quote extensively from them here. Mercola, himself, expresses disappointment with himself for not realizing the negative effects of too much sitting for many decades. Vernikos when interviewed by Mercola said, “Sitting down for too long and (too) often turns out to be an independent risk factor for poor health, fortunately the remedy is simple (Gilson, Burton, Van Uffelen, & Brown, 2011; Hamilton, Healy, Dunstan, Zderic, & Owen, 2008; Vernikos, 2011).

Background to Standing Desks

The standing desks movement, does not appear to have an inventor or sole promoter it just seems to be a paradigm change that is growing as word gets around about its benefits. In actual fact standing desks and standing, active at work have been standard or optional practice in many work areas for ages – think of receptionists, hotel, hospital, airport and building reception counters, supermarket checkouts, even bank tellers – most use standing counters because their customers walk in and walk out and will only take a few minutes to get the information or whatever service they want so there's no point in sitting down plus standing allows for better eye contact and service attitude with the customers. Standing is also customary in many arts, think of artists, actors, conductors, sculptors, film directors, cameramen, rock

bands except sometimes the drummer and in fact many writers – it seems standing is better for creativity. Standing also allows for better use of space and easier movement when space is at a premium, two or more people can stand in the space needed for one person to sit down, think of rush hour commuter trains and buses as an example. Another example that Ibrahim remembers from Australia are counter lunches and six o'clock swills in Australian pubs (public bars in hotels), both to maximize the use of time and of space with ease of movement: For counter lunches, in the lunch break from 12am to 1pm, the customers would collect their fast-food lunch plus a beer at the bar counter and take them to standing benches, about 1.10cm high, either against the wall or free standing; there, they would stand or sit on high bar stools with seats about 75cm. high, to drink beer and more beer while talking to their mates. The six o'clock swill was a relic of World War II in Melbourne and other parts of Australia, when pubs were required to stop serving alcoholic drinks at 6pm.: As a result from finish of work (in those days) at 5pm till 6pm the same public bars of these pubs would be jam packed with blokes having a drink with their mates. Those days are now long past; nowadays couples sit together in beer gardens listening to buskers and take care not to drink too much in case they get caught by the police for DUI (driving under the influence). These examples, however, have only passing relevance for standing desks in schools and work, except to illustrate that standing at work and at play has a long provenance.

Famous People Who Used Stand-Up Desks

Many famous people, inventors, scholars, politicians and leaders throughout history have used Stand-Up Desks, as Grunseit, Chau, Van der Ploeg, & Bauman (2013): "Standing at work is not a new idea. Famous authors like Ernest Hemmingway, Charles Dickens, Donald Rumsfeld, Thomas Jefferson and Benjamin Franklin all used standing desks". Although workplace standing desk initiatives have grown in popularity, that same growth is not evident in

the classroom (Benden, Zhao, Jeffrey, Wendel, & Blake, 2014; Ringlein, 2016; Sherry, 1995).

Table 1: Some Famous People Who Used Standing Desks

Leonardo Da Vinci	Designed, sketched & wrote while standing up. Until 2 decades ago most designing & drawing was done at stand-up drawing boards.
Napoleon Bonaparte	Had fold-up standing desk & map table which could be easily packed up & moved.
Thomas Jefferson	Wrote USA Declaration of Independence standing up.
Charles Dickens	Wrote works like Oliver Twist standing up.
Winston Churchill	Wanted nothing but standing-desk for fighting war against Hitler

Many other famous people also used standing –desks including founding father of the USA – Benjamin Franklin; authors – Ernest Hemingway, Virginia Woolf, Thomas Wolfe and Vladimir Nabokov and businessman –inventor Michael Dell of Dell Computer also the Facebook office have hundreds of standing desks. Another source for the growth momentum in Standing desks is the "Stand-up Meetings" movement.

The Stand-Up Meetings Movement

The Stand-Up Meetings Movement has now grown so large in management circles that it has it's own Guidelines and functionaries. There are many articles on the internet about the benefits of standup meetings. The notes in the figure that follow are as good as any:

Table 2. Benefits of Stand-Up Meetings

<p>http://spin.atomicobject.com/2009/07/07/10-reasons-we-have-daily-stand-up-meetings/ You'll find different answers in different articles but they all boil down to this: keeping your team in sync with each other allows you to address your work more effectively. Cons are harder to find because there really aren't any disadvantages to good tactical planning. If you search for "challenges" you'll find a little bit. This article addresses some of the more common challenges: http://www.sitepoint.com/scrum-standup-slowness-down/</p> <p>If you're wondering if you should have stand ups, the answer is simple. You should. Do them right.</p>

These Stand-Up Meetings appear to be part of management practice for fast-paced IT companies in Silicon Valley and such-like organizations; they even have their own vocabulary and way of working. Often people are working in self-managing teams that have regular Stand-Up meetings or Scrums; these are often held daily, often first thing in the morning when all members of the “team” can attend although some hold them around mid-day and some only meet once a week or every second day. The meetings generally have a fixed time limit usually only 15 minutes (but

some can be 20 or 30 minutes long) where every member of the team has to make a brief report (see below). A definition of “scrum master” with some more details is in the box that follows. Brief Stand-Up or Scrum Meetings could be a useful technique to use in schools for co-ordination of teaching programs or they could be used in classes where students are organised into groups with each group having a separate program of work like compiling a glossary.

Table 3. Definition: scrum master Posted by: [Margaret Rouse](#)

A scrum master is the facilitator for an [agile development](#) team. [Scrum](#) is a methodology that allows a team to self-organize and make changes quickly, in accordance with agile principles. The scrum master manages the process for how information is exchanged.

Although the scrum analogy was first applied to manufacturing in a paper by Hirotaka Takeuchi and Ikujiro Nonaka, the approach is often used in [agile software development](#) and other types of project management. In rugby, opposing teams huddle together during a scrum to restart the game.

In product development, team members huddle together each morning for a [stand-up meeting](#) where they review progress and essentially restart the project. During these morning meetings or “scrums,” the scrum master asks the team members 3 questions:

1. What did you do yesterday?
2. What will you do today?
3. Are there any impediments in your way?

Although the title of scrum master sounds powerful, the scrum master is not the project leader and is not held accountable for outcomes. The team as a whole is responsible for outcomes. However, that does not mean that the job is easy. The scrum master is responsible for:

1. Helping the team to reach consensus for what can be achieved during a specific period of time.
2. Helping the team to reach consensus during the daily scrum.
3. Helping the team to stay focused and follow the agreed-upon rules for daily scrums.
4. Removing obstacles that are impeding the team's progress.
5. Protecting the team from outside distractions.

Scrum meetings are basically co-ordination meetings, not progress meetings (at progress meetings every key person reports on the progress of their team/sub-team and these can take half-a-day, a day or longer). Usually the teams will not have more than a dozen members: If the meetings get too big there should be sub-team meetings first and then the leaders of the sub-teams will have a quick scrum to make sure people are not wasting their time at meetings. Invariably the meetings are Stand-Up to keep them quick, to-the-point and to make sure they don't go over the time limit eg. 15 minutes. Only one person speaks at a time, the scrum master may use an egg timer to make sure members don't

speak over time and may use a small beach ball or similar which is given or thrown to the person whose turn it is to speak.

What Do We Mean by Standing-Active

By saying, “Standing-Active” or “Stand-biased” or “Standing-Biased” we want to differentiate the default activity from “Standing Rigid”, the latter can be just as bad for health outcomes as sitting rigid or sitting soporifically, think of guards outside a high security installation who stand but don't move, that is standing rigid (Benzo, Gremaud, Jerome, & Carr, 2016; Dornhecker, Blake, Benden, Zhao, & Wendel, 2015; Hinckson et al., 2016). The key to Standing-Active is

standing and moving, changing posture or position at intervals, shifting from one leg to the other, even twirling occasionally, when you feel like it. So why do we need standing desks—well it's just so much easier when standing up, to get the anti-gravity movement that's so important for health, if a person already has a standing desk; once a person sits down—then the tendency is to keep on sitting & maybe even to go half-asleep. When you're standing you tend to stay more alert and to remain more involved with what is going on around you.



Figure. 1: 4 desk heights: Adjustable height desks not recommended as tend to get stuck in sitting position.



Figure 2: Showing students in various postures showing engagement at Stand-Biased desks.

Engagement was measured by on-task behaviors such as answering a question, raising a hand or participating in active discussion and off-task behaviors like talking out of turn. Standing desks do not have to be big and expensive. They can be quite simple and inexpensive like the one in this picture. Note that the height of the desk should be about elbow height as shown in the picture. This means that the height of the desks could be adjustable annually (eg telescopically, as

shown) since the height of the average student will increase each year. Also note that the desk and the accompanying stool or high chair should provide for a range of movement by the student – here the student has his right foot on a foot bar while his left foot is on the floor, at other times he can change feet or can have both feet on the floor or can sit on the stool with one or both feet on the stool foot-bar thus providing for a range of movement.



Figure. 3: Primary Student with Simple Adjustable Standing Desk and Adjustable Height Stool



Figure 4: Student at Sitting Desk with Teacher at Standing Desk

Showing teacher with lap-top at adjustable height desk, adjusted for teacher's height while standing and students, also at adjustable height desk, adjusted for students' height when sitting (Benden, Wendel, Jeffrey, Zhao, & Morales, 2012; Dornhecker et al., 2015; Minges et al., 2016; Wendel, Benden, Zhao, & Jeffrey, 2016). Note posture of teacher good, relaxed but upright while student shows typical poor student sitting posture, bending with rounded shoulders and neck which will create a soporific state, obviously her teacher has not taught her to bend from her waist; ideally she should raise

her desk and be given a stool. When students have Standing-Active or Stand-Biased desks, teachers should have them too and vice versa. For most classes this will still mean that the teacher has a height advantage and can look down over her class. However in the last years of high school, when the students will probably be the same height or maybe even taller than their teacher, schools should provide a rostrum or platform for their teachers to give them a height advantage. Ibrahim can remember when, 60 or more years ago, in Australia, all classrooms had a rostrum but classrooms built today, in Aceh, do not have them.



Figure 5: Standing Desk Ergonomics (1)

Standing Active Desk - Ideal Ergonomics: Desk height at elbow height or just below; Screen about 50 to 70 cm from eyes; Screen tilted slightly back; Keyboard set back slightly, keys 20 to 30 cm in from edge of desk so wrists can rest on edge of desk, ideally key board should be tilted up slightly, towards user, using fan rack, but this is not shown in figure.

Note 1.– good upright standing posture.

Note 2. – Does not show stool, or foot bar – these are important to enable person to be active not rigid

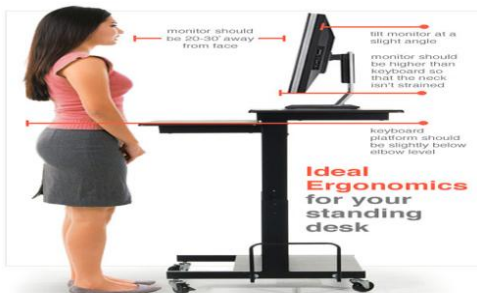


Figure 6 : Standing Desk ergonomics (2)

Standing-active desk (2). Notes: Monitor 50 to 75cm from face: Monitor at slight angle good, but should avoid direct light from windows: Student/writer should maintain good posture when reading lower part of monitor by either lowering eyes or by bending very slightly at hips: Should avoid bending neck as that will result in neck ache & bad posture. Keyboard can be slightly higher than elbows, not below as shown. Probably simpler to have one height desk not split as shown, if monitor needs to be raised higher it can have a longer supporting arm or be put on a box. Better not on castors as shown to avoid unnecessary movement should have foot rail at about 25 cms above ground.

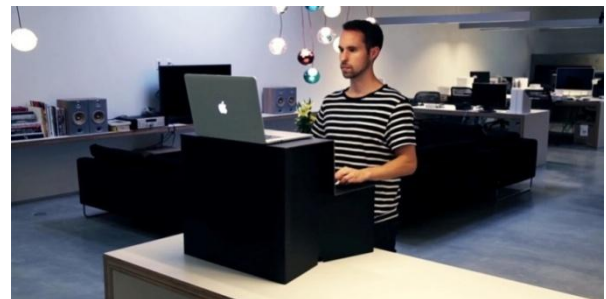


Figure. 7: Boxes Turn Standard Desk into Standing Desk

Making standing desks by using boxes: Standard desk height 70 to 75cm. high: First box, for separate keyboard, 25 cm. high: Second box, for laptop, +/- 40 cm. high: Similarly students can choose from boxes of different heights, 10, 15, 20, 25cm to match their elbow heights so we don't need new desks to start standing desk trials, just boxes and stools. Silva has said "Standing desks may become more commonplace in classrooms in the next few years, with studies showing they help students pay attention while also fighting childhood obesity (Silva et al., 2018). The Centers for Disease Control and Prevention (CDC) funded a study in January 2014 on standing desks, offering Bryan Collegiate High School in Bryan, Texas the choice to replace traditional desks with standing desks. Thirteen classrooms accepted. Principal Christina Richardson noticed the difference the standing desks made. "The kids who would normally be slouched down, half-asleep or fidgeting in

their chair were now standing up and paying attention," she said.



Figure. 8. Melissa Irving's fourth-grade class tries out standing desks at Belle Terre Elementary School, USA.



Figure. 9: Showing how smallStanding Desks can be Moved into Circles for Small Group Work

Mark Benden, an associate professor of environmental and occupational health at Texas A&M University, started a study of *Standing Desks* in 2011. He found that desks that encourage students to stand rather than sit help burn a significantly higher amount of calories during the day. Benden studied classrooms in central Texas, using arm bands to measure caloric expenditure in students over the course of ten days. The students at standing desks burned more calories than those in traditional desks. On average, students who stood burned 11 more calories per hour than those who remained sitting. For students higher than the 85th percentile for weight—classified as overweight or obese—they burned 32 more calories than when sitting. While standing desks can be expensive compared to traditional desks,

Benden expects the price to drop as more companies enter the standing-desk market.

According to Chua, not only do standing desks seem to be good for the health of students, but teachers have noticed that students pay more attention, are more alert, and behave better with the introduction of the desks.

Adult office workers also notice the difference in productivity. At the University of Maryland's Clarice Smith Performance Arts Center, 25 percent of the center's staff switched to standing desks in May (2014). Employees stated that decreasing the amount of time sitting helped lessen headaches and back pain, and increased energy levels.

Employees at *Business Insider* put standing desks to the test in 2013. They tracked their work and found that standing led up to a 10 percent increase in productivity. Workers were able to better concentrate, something that *Business Insider* believes is due to the fact that standing up provides a sense of urgency to get things done. When tasks were effectively completed standing up, employees allowed themselves to sit for a while.

Likewise, children pay more attention when they aren't sitting for prolonged periods of time.

Monica Wendel, a co-author of the standing desks study, told the *Chicago Tribune* that although the standing desks offered stools for students to sit on, the majority preferred standing. "What we found was that most students WANT to be standing, to be moving. They don't want to sit still—it's against their nature. We Are The Ones Who Teach Them To Be Sedentary."

Students seem to like the desks as well. Fourth-grader Emma Kalcounos told My News 13 in Orlando, Fla., that she felt more involved in class with a standing desk. "When you're sitting down, you feel tired because you're sitting and you're not, like up and like, paying attention," she said. "

But when I'm standing, I feel like I'm paying attention and I'm not tired.



Figure. 10. Showing combination of standing desk with sitting desk which is common for receptionists and sales professionals

Deardorff (2012) reports that ‘Some teachers worry the desks will be a distraction. But according to researchers, standing “actually improved attention, on-task behavior, alertness and classroom engagement,” said Wendel, director of the Center for Community Health Development at the Texas A & M Health Science Center. “In fact, after several weeks, the teachers requested that their desks be raised also.” The desks, called “stand-biased” or “standing-biased” because they encourage standing, were paired with a stool that matched the height of the desk. That allowed students to be at the same height in relation to the desk top, regardless of whether they were sitting or standing.

Research with adjustable desks – which are mechanically raised and lowered – has found that once the novelty wears off, changing the desk height becomes too much of a hassle and people default to sitting because that’s how high the chair is. “With a stand-biased desk, you walk in and you’re at the right height,” Wendel said. “You can change between sitting and standing with little effort, and that’s the part that is best for you: transitioning between postures frequently.”

How much more Standing can be expected.

The maximum amount of additional standing with movement that can be expected is only about 17% of waking time but we

calculate even that maximum underlined could be more than a 100% increase on standing time at present. This is calculated as follows:

1. The maximum standing in class we can expect in one day is about 6 periods of 40 or 50 minutes = 240 or 300 minutes = 4 or 5 hours/day for school students;
2. That equals 4 or 5 x 5 days (max) = say av. max 22 hours/ week, if stand in every class = 20% of waking hours (for 16 waking hour days) during school terms: In reality we can only expect about half the classes to be standing, so a realistic improvement would be only 10%. But school year is only about 42 weeks or 80% of the year so maximum is about 16% of waking hours over the whole year, realistically say only 8%.
3. Students generally only have about 20 x 50 minute classes per week so max., would be about 16 hrs/week, but 2 semesters is only 32 weeks/year so overall max. would also be 10hrs/week on average or 9% of waking time.
4. However, as students now are only spending approx. 15% of their time standing and walking ie not sitting this would still be a 60 to 100 % increase in standing, see table below:

Table 3: Standing in Class – Maximum as % of Waking Hours

ACTIVITIES	Hours now	Hours/week in semester after Standing starts	Annual % now	Annual % with Standing In school
Total Waking Hours per Week (16 hrs/day)	112	112	100	100
Sitting hours	95	75	85	76
Standing in class, hours maximum		10		9
Other activities – standing, walking etc.	17	17	15	15

Steps or Stages to More Standing

Because changing from always sitting in offices and schools to mostly standing involves a major paradigm shift or change for most office and school communities the steps or stages in making the transition need to be well planned. Whatever change is done must be done with majority support of the staff and the students and initially as a result of a decision by the workers/ students involved. The reasons for making the changes must be understood ie. That the workers/students involved will be healthier and will get better results. If the changes are forced, it is possible that those involved will resent the changes and as a result the expected improvement in results may not happen. So what are the recommended steps or stages in making the change from sitting passively to standing actively?. Our suggestions are set out below:

- 1) Socialization or information transfer and if possible physical demonstration of standing active plus education about benefits compared to sitting; at the same time ensure provision of any funding needed for modifying desks and chairs or for buying new ones. In schools, socialization needs to follow a five step program: (i) There must be a promoter, someone who is convinced that standing active is the way of the future; (ii) Preparation of socialization materials; (iii) Promoter socializes regional managers and/or school principles; (iv) School principles and/or promoter socialize teachers; (v) Teachers socialize their students.
- 2) Act of Free Choice – ask for volunteers from the community eg. 20 % of the workers or a few teachers and their classes who want to be the first to try standing active. [If more want to join in that should be OK as long as any extra funds needed can be made available eg. for modifying desks & chairs or for buying new ones]. Note, each teacher must first decide that she wants to be a standing active teacher before she tries to convert her class to being standing active

- 3) Starting and running standing active classes, this step also has several sub-steps viz: (i) Modification or purchase of standing desks and high chairs. (ii) If necessary, teachers modify lesson plans to fit new normal standing active. (iii) Modified or new desks brought into classes and teacher starts classes with new normal mode “standing active”.

Standing Active Desks & Chairs General

One possible objection to starting standing in offices and schools is that you have to get new chairs and desks before you can start and this could involve a large outlay for something which is not proven : In fact, we recommend making changes step by step and making sure there are positive results before committing to any large expenditure for new desks, we don't recommend changing everything all-at-once, sim salabim.

Use what's there to start with

Many junior and senior high schools have science laboratory classrooms for the science stream of students; these labs are already equipped with laboratory benches that are the right height for standing desks and they will usually also have high stools to match the height of the benches. These labs can be used straight away for standing active classes. In fact the science practical classes at such schools usually already have their lessons standing up. Moreover, in many of these schools these labs are used for less than half the school hours so in such schools other classes eg, maths, english, social studies, history could book or use the lab at times when it is not needed for science practicals. This is what we did when we did a successful trial standing class for English X in the science lab at the Lab (senior high) School at Unsyiah University, the results of that trial class are reported elsewhere in this study. If needed foot-rails can also be added to the old desks and new chairs about 20 to 25 cm above the floor and inset about 20 to 25 cm from the edge of the desk.

For primary schools in a complex with high schools the primary schools can probably use the sitting desks and chairs that are discarded by the high schools (if the high school starts using new standing desks) as these will be about the right height to use as standing desks for primary school students.

Alternate Standing with Sitting

Many class-rooms and lecture rooms now only have tubular steel folding chairs with a writing –pad arm rest. These chairs cannot easily be modified (see below), however teachers can modify their teaching so that they ask the students to stand when the teacher is giving instructions and having discussions and only to sit when the students have to write

Modify Existing Desks to Start With

Another way to start is to modify existing desks and chairs to use them for standing classes or standing work, two ways of doing this are listed below:

1. Bolt extension legs onto existing desks and chairs to raise them to the height needed. For class XII the additional height needed will only be about 25 cm. Such extension legs only need to be about 50cm long made out of timber, bamboo, rotan or metal tube or angle (aluminium or steel) with two bolts bolting each extension leg to an original leg.
2. Use a box or a second top of the right height (eg + 25cm.) on top of the old desk, see Figure 6 : a possible disadvantage of this is that one cannot sit on a high stool with knees under the desk.

Trying Standing Desks

There are dozens of standing desk designs available– just google standing desks and stools and you can see for yourself: But before you decide to buy lots of one particular design we suggest you get a few different ones and try them to find out which one is the most ergonomic as well as being the most economical and practical, ie., most efficacious.

We think there could be advantages in sloping desk-tops with a small catch rail on the lower side to stop your paper and pens from falling off all the time. Usually a cupboard and drawer will not be needed for student desks but a hook on the side of the desk to put a bag on could be good.

We don't recommend the adjustable desks and stools as, apart from usually being much more expensive, in general the adjustable components will break down before long with usual school useage: Also if the desks can be adjusted to be used either standing or sitting before long those desks could be permanently used for sitting and classes will revert to sitting as their default behaviour because many students will often opt to be lazy.

Perchance, the science lab at the Lab school which we used for our trial (see later for results) had large steel lab tables, 1.00m high, that could seat 4 to 6 students, plus high chairs. Such tables are excellent to use for teaching using groups. In many of our English classes we find using groups for self-monitoring and finding group answers to have advantages for teaching. Especially for speaking classes where one student in each group can be speaking out loud to his/her group at the same time. As a result (if there are five groups, each of 5 students) five students can be speaking at the same time instead of just one student speaking to the whole class. We find this a much more effective and efficient way of running a speaking class: 5 students speaking at one time is 5 times more speaking practice than 1 student speaking at a time and a lot less boring.

METHOD

This is qualitative research which investigates the pros and cons of standing while working and studying. This method provides researchers to obtain deep understanding of the research participants' experiences, thoughts and perceptions (Attride-Stirling, 2001; Bryman, 2006; Burns,

2003; Cho & Trent, 2006; Patton, 2005). This research focuses on whether the research participants which includes Education practitioners and students interested to learn and support the introduction of standing desks. A simple Likert scale was also used to gather the data. Detailed information about the steps of this research conducted is elaborated in the result section.

RESULTS AND DISCUSSION

School managements providing standing (active) or standing-biased desks in schools can expect to reap some or all of the following benefits:

- a. Better results at end of semester and end of year,
- b. Students more attentive, and our own results
- c. Students more interactive, result from our own surveyplus
- d. Students more active because of standing active
- e. Allow for easy and frequent changes in posture which leads to
- f. Healthier students and should evenhelp to reduce obesity,
- g. Teachers standing too, to set the example can lead to less stress and healthier teachers plus
- h. Better for students with problems like ADHD or Dyspraxia and
- i. Setting an example which can be followed out-of –the class-room eg in homes and offices.

Results From First Survey

In late July, at a co-ordination meeting between Unsyiah and USU from Medan held in the Teacher's Faculty at Unsyiah. Twenty five education practitioners (lecturers) were attending this meeting. In this meeting, an information sheet about the benefits of standing desks combined with a questionnaire was distributed to the lecturers and students at the meeting (refer Appendix 1). The questionnaire had 7 questions about whether the reader was interested to learn about the potential benefits and would support the

introduction of standing desks; it also had a simple Likert scale with three potential answers: disagree, maybe, agree. After halving and sharing the maybes between agree and disagree, 66% of the respondents supported the introduction of standing desks; other comments also supported introducing standing desks after adequate familiarization.

On Tuesday morning, the 8th August, a trial standing class was held with a regular Class X English class at Lab (High) School, Unsyiah University: We are very grateful to the Principal Mr Nasir Usman M Pd., the Vice Principal Ms. Essy Mamelly M Sc. and the English Teacher, Ms. Natasha S Pd. for assisting us with this study. Lab school was built and furnished with international aid funds and designs (after the 2004 Tsunami) so the classrooms are bigger and the furnishings are sturdier than usual in Indonesian schools. In order to work with us, Ms Natasha, shifted her Class X English class to a Chemistry Lab in the Lab School. This Lab had steel frame desks with stainless steel tops about 1.00m. high and high chairs to match (seat height +/- 75cm., with foot rail height +/- 25 cm). After introductions, Mr Champion explained to the class of 14girls and 13 boys that they were going to help with research into standing classes. Ms Natasha than took the class for teaching-learning about describing people and got some of the students, one by one, to come out in front of the class to describe a person in English. Because they had high chairs the students mostly sat and only stood if they had to come out to speak in front of the class. At the end of the class the students completed a questionnaire (refer Questionnaire, Survey 2, in Appendix 2) about their experience with a standing class. The students were quite noisy , talking a lot, apparently noisier than usual as some students noted on their questionnaires. Partly this may have been because it was a speaking class and partly because the students had been moved to a new classroom to experiment with a standing class. *If the standing class became regular and the students are given lots to do, eg, 1 student in each group is speaking at the same*

time, we expect that the level of non-study talking will diedown over time.



Figure 11. Mr. Champion with standing class practicing posture at Laboratory school High School

The questionnaire had 3 questions with a Likert scale and 2 expressions of opinion. The first question asked whether the students were interested in studying whilst standing, 42% were very inter-ested and wanted to try and 57% only slightly interested and would maybe like to give it a try. The second question asked if the students were interested to try studying whilst standing or using a high table/desk: Again 42% were very interested and wanted to try, 46% were slightly interested and maybe prepared to give it a go and 11% were not interested and did not want to try. The third question asked if the students could choose to learn whilst standing or using a high table whether they would choose to do so: Interestingly, this time 57% indicated they were very interested and wanted to try and 42% were slightly interested and maybe would choose to try.



Figure 12. Mr. Champion talks with the Class X English students at laboratory school about the benefits of standing over sitting.

The first expression of opinion asked students what they thought were the benefits of learning whilst standing: The students gave a wide variety of answers and most of them listed 2 benefits. The most common answer with 9 mentions was that students will be

more focussed and will learn better, next 8 said that students wouldn't get sleepy of go to sleep – interesting yes!. Next 5 students said that they would be more free and active and 5 also said that standing would not make them bored. Then 4 said it would reduce laziness to learn and another 4 noted it would make it easier to sosialize. Three thought of their teacher and said it would be easier for the teacher to teach and another three said that students wouldn't get backache, two said it would be easier to express an opinion and finally there were a bunch of other answers that were only mentioned once. The teacher, Natasha , said that it would make it easier for the teacher to teach, to get inspiration and ideas, to project her voice and to transfer material, also it would reduce stress for the teacher and would be better for health. The final open question asked what the students thought would be the problems or shortcomings with learning whilst standing. These answers were more concentrated – 20 students thought it would be tiring or boring if students had to stand too long, 12 said it would be hard to focus or concentrate and 9 said that the class would be noisier, harder to control and easier to speak with the student next to them. The teacher said that standing classes need to be programmed when they would be done and the teacher will have to program activities especially for standing mode, she also thought it could be tiring for some students. Some of the students gave conflicted answers: 9 said that they would not be sleepy but also said that it would be tiring, another 4 said that learning woud be less rigid and not boring whilst noting that the class would be noisier and another 4 said that the class would be more active whilst noting that it would be less focussed.

CONCLUSIONS AND RECOMMENDATIONS

To summarize if we had held a vote and we assume half the maybe answers will vote negative and half positivethen the voting would probably be 72% in favor of learning while standing and 27% against, also,while they listed more benefits thannegatives, the

main negatives, tiring and noisy, should abate when standing becomes usual and the default mode.

School Managements, school based, district based and provincial based, should start programs of trying standing desks for their schools: Start with a few classes where volunteers want to try them or to get them as a result of a ballot, next see the results and then, if the results are positive, make a program so that all classes that request them can have standing desks. Teachers must also be provided with standing desks. Administrative staff could also be provided with standing desks. To keep costs down, and avoid administrative problems of what to do with all the old sitting down desks and chairs, school managements might be able to request bidders to tenderto replace old sit down desks and chairs with new stand up desks and stools. [Note: This would apply in particular to public schools as they have administrative problems with selling or writing off equipment which is no longer needed or used as it's still government property, so trading in the old equipment, if allowed, could solve this problem. What problem? The problem of hundreds of obsolete desks that would take up a lot of space if they could not be taken away as trade-ins for new desks). Other researchers should follow up this study and do more studies on the benefits and contrast of standing up and movement in classes.

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